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DEVELOPMENT STAFF
JCS

November 8, 1967

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To: [REDACTED]

Subject: Sales Proposal 6927-47

Gentlemen:

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I am pleased to submit our proposal to modify the [REDACTED]
[REDACTED] Model 985 Microdensitometer Read-out System.

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Our Firm Fixed Price estimate for this task is [REDACTED] This estimate
assumes a two months period of performance.

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I assume this meets all of your requirements. If you have any questions,
please contact me.

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STATEMENT OF WORK

MODIFICATION OF MICRODENSITOMETER
DIGITAL READOUT SYSTEM

INTRODUCTION

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This statement of work describes a proposed program to modify the Model 985 Microdensitometer Readout System. Two modifications are involved. The first will permit shorter and more accurate scan lengths than can presently be obtained. The second will permit a sampling rate of ten samples per micron.

MODIFICATION OF SCAN LENGTH

Presently the minimum length of scan is limited by the physical size of the micro-switches used to set the ends of the scan. We propose to use the coordinate counter to establish scan length. This should also provide a more accurate scan since the switch variations will be eliminated.

One end of the scan will be the zero coordinate. This requires that the operator move the carriage to the desired starting point and reset the appropriate coordinate counter at that point. The desired length of scan will then be set decimally in microns on six thumbwheel switches. Reversal of scan direction will occur when the coordinate counter reaches zero and when it reaches the set value.

To accomplish this will require the addition of six decimal switches, six decade counters and associated interfacing.

This modification will be usable on either the X or Y axis scans. The present SCAN AXIS switch will make this selection.

INCREASED SAMPLING RATE

The present maximum sampling rate is one sample per micron. The purpose of this modification is to increase this rate to ten samples per micron. It should be noted that the present digital system has a maximum sample rate expressed in samples per

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second. Increasing the number of samples per micron will then reduce the maximum scan rate. In three color operation, the maximum scan rate will be five millimeters per minute.

To accomplish this, we propose to provide a crystal controlled oscillator and divide the frequency down appropriately to give ten samples per micron. Since the stage is driven by a synchronous motor, the rate of travel is constant except during start and stop. On the assumption that the 60 cps power source is very nearly constant in frequency, the crystal controlled oscillator will then provide an essentially constant distance between samples. Our experience indicates that the 60 cps frequency is sufficiently stable. However some testing of this either before or after the modification should be performed. If instability of the power source should be a problem, power for the scan motors can be derived from the crystal oscillator. However, our present program does not include this.

Basically, this modification will consist of adding a crystal controlled oscillator and a frequency divider. The present equipment will then be changed as necessary. A switch will be provided to permit either the added sample signal generator to be used or to permit operation in the present manner. Also, a multiple position switch will be added so that a ten samples per micron signal can be obtained at all scan rates.

PROGRAM

It will be necessary for one man to visit the equipment early in the program in order to determine space available, necessary package configuration, etc. He may also find it desirable to make some electrical checks but primarily this visit is necessary for packaging reasons.

Modifications will then be designed and fabricated at

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Installation will be performed by a engineer. Complete check-out will follow installation.

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SCHEDULE

Modification units will be complete and ready for installation within sixty (60) days after the program is initiated. Installation and check-out will require one week.